

Claims:

1. (Currently Amended) A method comprising:
transmitting a defined beam of eyesafe laser energy, said beam having an azimuth angle of 360°;
receiving reflected energy from said beam; and
analyzing information in said received energy so as to detect the presence of a moving projectile.
2. (Currently Amended) A method according to Claim 1, including configuring said beam to have an azimuth angle and an elevation angle.
3. (Canceled) ~~A method according to Claim 2, including selecting said azimuth angle to be 360°.~~
4. (Currently Amended) A method according to Claim 3 2, including selecting said elevation angle to be approximately 10°.
5. (Original) A method according to Claim 1, wherein said receiving includes directing said reflected energy onto a detector having a two-dimensional array of detector elements, each said detector element receiving reflected energy from a respective different direction.
6. (Original) A method according to Claim 1, wherein said analyzing includes detecting a Doppler shift in said received energy.
7. (Original) A method according to Claim 6, wherein said receiving includes directing said reflected energy onto a detector having a two-dimensional array of detector elements, each said element receiving reflected energy from a respective different direction.
8. (Original) A method according to Claim 7, wherein said receiving includes directing onto said detector a reference beam, so that energy from said defined beam mixes with energy from said reference beam in each said detector element to produce sum and difference frequencies.

9. (Original) A method according to Claim 7, wherein said analyzing includes supplying an output signal from each said detector element to a plurality of circuit portions which each perform at least one of filtering and fast Fourier transformation.

10. (Original) A method according to Claim 9, wherein said transmitting includes configuring said defined beam to include chirp modulation.

11. (Original) A method according to Claim 9, wherein said transmitting includes configuring said defined beam to be modulated with a single frequency.

12. (Original) A method according to Claim 9, including selecting said reference beam to be substantially equivalent to said defined beam.

13. (Currently Amended) An apparatus comprising:

a transmitter portion which transmits a defined beam of eyesafe laser energy, said beam having an azimuth angle of 360°;
a receiver portion which receives reflected energy from said beam; and
a further portion which analyzes information in said received energy so as to detect the presence of a moving projectile.

14. (Currently Amended) An apparatus according to Claim 13, wherein said beam has an azimuth angle and an elevation angle.

15. (Cancelled)

16. (Currently Amended) An apparatus according to Claim 15 14, wherein said elevation angle is approximately 10°.

17. (Original) An apparatus according to Claim 13, wherein said receiver portion includes a detector having a two-dimensional array of detector elements, and structure for directing said reflected energy onto said detector, each said detector element receiving reflected energy from a respective different direction.

18. (Original) An apparatus according to Claim 13, wherein said further portion includes circuitry which can detect a Doppler shift in said received energy.

19. (Original) An apparatus according to Claim 18, wherein said receiver portion includes a detector having a two-dimensional array of detector elements, and structure for directing said reflected energy onto said detector, each said detector element receiving reflected energy from a respective different direction.

20. (Original) An apparatus according to Claim 19, wherein said receiver includes structure for directing onto said detector a reference beam, energy from said defined beam mixing with energy from said reference beam in each said detector element to produce sum and difference frequencies.

21. (Original) An apparatus according to Claim 19, wherein said circuitry includes a plurality of circuit portions which each perform at least one of filtering and fast Fourier transformation of an output signal from one of said detector elements.

22. (Original) An apparatus according to Claim 21, wherein said defined beam includes chirp modulation.

23. (Original) An apparatus according to Claim 21, wherein said defined beam is modulated with a single frequency.

24. (Original) An apparatus according to Claim 21, wherein said reference beam is substantially equivalent to said defined beam.

25. (Currently Amended) A method comprising:
transmitting a defined beam of eyesafe laser energy, said beam having an azimuth angle of 360°;
receiving reflected energy from said beam; and
detecting the presence of a moving projectile by detecting a Doppler shift in said received energy.

26. (New) A method comprising:

transmitting a defined beam of eyesafe laser energy throughout a predetermined beam azimuth angle;

receiving reflected energy from said beam; and

analyzing information in said received energy simultaneously throughout a field of regard so as to detect the presence of a moving projectile;

wherein the field of regard defines a contiguous azimuthal extent that is to be analyzed for the presence of a moving projectile and wherein the beam azimuth angle is substantially equivalent to the field of regard.

27. (New) An apparatus comprising:

a transmitter portion that transmits a defined beam of eyesafe laser energy, said beam having a beam azimuth angle;

a receiver portion that receives reflected energy from said beam simultaneously throughout a field of regard; and

a further portion that analyzes information in said received energy so as to detect the presence of a moving projectile;

wherein the field of regard defines a contiguous azimuthal extent that is to be analyzed and wherein the beam azimuth angle is substantially equivalent to the field of regard.